



Santa Cruz Island Frequently Asked Questions

What is the goal of this restoration project on Santa Cruz Island?

Santa Cruz Island, located off the coast of Santa Barbara, California, sustains a remarkably diverse community of plants and animals, including 12 found nowhere else in the world. The Nature Conservancy, which owns 76 percent of Santa Cruz Island, and the National Park Service, which owns 24 percent, are committed to preserving the biological diversity and the cultural resources of the island. Currently, 10 species—the Santa Cruz Island fox and nine plants—are federally listed as threatened or endangered. Our goal is to remove the threats that have caused this alarming decline, and to restore the island's diverse habitats so that native plants and animals can survive.

What are the threats to Santa Cruz Island?

Feral pigs, brought to the island as domestic farm animals in the 1800s, pose the biggest threat to Santa Cruz Island. They root up vegetation and disturb the soil, which leads to the destruction of ancient Chumash archaeological sites, cause widespread erosion, and facilitate the spread of invasive weeds that choke out native plants.

Feral pigs have become the primary food source for a new predator to the island. Golden eagles from the mainland arrived on Santa Cruz Island in the 1990s, sustained by the year-round supply of feral piglets. In addition to preying upon pigs, the golden eagles have also preyed upon the Santa Cruz Island fox, a species found nowhere else in the world. Since 1994, golden eagles have reduced the island fox population by over 90 percent, hunting them to the brink of extinction.

Today, fewer than 100 island foxes exist in the wild on Santa Cruz Island, down from a population of approximately 1,500. In March 2004, the U.S. Fish and Wildlife Service listed the Santa Cruz Island fox as an endangered species.

What is being done to restore Santa Cruz Island?

The Nature Conservancy, the National Park Service and several public and private partners are engaged in an adaptive management program to recover the island fox and restore Santa Cruz Island's native habitat. The program involves five components: restoring island foxes, relocating golden eagles to the mainland, re-establishing bald eagles to their historic island home, eradicating feral pigs and restoring island habitats. More details of this program can be found at www.nature.org/california and www.nps.gov/chis.

How many foxes have been born in captivity?

The National Park Service, The Nature Conservancy and the U.S. Fish and Wildlife Service co-manage two captive breeding facilities on the island. So far, the program has been very successful, producing 34 pups since its implementation in 2002. There are currently 44 foxes in captivity; they will remain in captivity until threats to their existence in the wild are reduced.

How are island foxes being monitored in the wild?

Fewer than 100 foxes remain in the wild. Scientists have fitted more than two-thirds of the wild fox population with ultra-light radio collars to monitor their movement patterns. Having a large proportion of the population collared allows us to closely track the survivorship and mortality rates of the foxes over a short time scale. This is particularly important in determining the habitat and behavior of the island fox and helps us to adjust our management actions accordingly.

How long have island foxes been on Santa Cruz Island?

The island fox is a diminutive descendant of the mainland gray fox. The first foxes likely found their island home thousands of years ago by floating from the mainland on debris after a storm. The land mass where they landed — called Santarosae, about five to seven miles off the coast — consisted of what we now call Anacapa, San Miguel, Santa Rosa and Santa Cruz Islands. As sea levels rose, separating the northern Channel Islands, genetically distinct subspecies evolved on three of the islands—San Miguel, Santa Rosa and Santa Cruz. Despite weighing less than five pounds, the island fox has remained Santa Cruz Island's top carnivore for thousands of years.

How long have pigs been on Santa Cruz Island?

European settlers imported domestic pigs to Santa Cruz Island in the mid 1800s. As pigs escaped or were released from their pens, they went on to form large feral populations.

The feral pig population goes through boom and bust cycles that cause their numbers to fluctuate wildly, from 1,000 to 4,000. In the spring—and during years of heavy rainfall—the pig population increases rapidly. When dry seasons hit and food becomes scarce, hundreds of pigs die of starvation.

Why are feral pigs being eradicated?

The law requires that The Nature Conservancy and the National Park Service, as landowners, protect federally listed species such as the island fox.

As long as feral pigs inhabit Santa Cruz Island, they will perpetuate a disastrous ripple effect. The pigs will continue to destroy endangered plants and allow invasive weeds to proliferate. They will continue to sustain golden eagles, and the fox population will continue to decline. Without immediate and intensive action, the endangered Santa Cruz Island fox and nine rare plants are destined for extinction, and valuable vestiges of island culture will be lost.

How will the feral pigs be eradicated from Santa Cruz Island?

The Nature Conservancy has contracted with a highly skilled, professional hunting firm to eradicate the feral pigs from Santa Cruz Island. The firm specializes in island eradications and has successfully removed destructive, non-native species from the Great Barrier Reef Island off New Zealand and Lord Howe Island off Australia. The firm has also been consulted on eradication efforts to preserve the rare, biological diversity of the Galapagos Islands of South America and Coco's Island off Costa Rica.

To facilitate the eradication, we constructed 27.5 miles of fencing to divide Santa Cruz Island into several zones. The hunting firm will systematically remove feral pigs from each zone through the use of aerial hunting, large traps and ground hunting with tracking dogs.

Neither snare traps nor leg hold traps will be used. Further, no poisons will be used. Hunters will use lead-free bullets and follow euthanasia guidelines set forth by the American Medical Veterinary Association. The dogs will be used for tracking only and are trained to corner the pigs and not attack them. Further, the dogs will undergo aversion training to avoid foxes and other island wildlife, such as skunks and birds.

How long will it take to eliminate feral pigs from Santa Cruz Island?

We expect the feral pig eradication to take two to three years to complete. Intensive monitoring will confirm when the last pig is gone.

Why must the feral pigs be eradicated? Can't they be returned to the mainland or controlled through the use of contraception?

Scientists with The Nature Conservancy, the National Park Service, universities and other public and private organizations have given considerable thought to alternative strategies for negating the damage caused by feral pigs. This is a program that has been many years in the making.

Moving feral pigs to the mainland is not an option. The State of California prohibits the relocation of pigs from Santa Cruz Island to the mainland because the pigs may carry parasites and diseases, which have the potential to be spread to other livestock. The pigs on Santa Cruz Island have been exposed in the past to hog cholera and to pseudorabies, a disease that they still could carry. Federal and State agencies have determined that the risk of spreading these diseases to mainland livestock is too great a price to pay.

There are no contraceptives or chemical sterilants that have any possibility of eradicating the feral pigs on Santa Cruz Island or substantially reducing their population. Feral pigs have a very high reproductive rate which results in rapid population growth. No contraceptive is 100 percent effective (meaning that some pigs will continue breeding and producing substantial numbers of offspring) and all contraceptives require multiple and regular dosing of the same animal to be effective. Even when properly and regularly applied, a percentage of the animals treated with the contraceptive will still reproduce. Moreover, contraception does not address the immediate needs of removing all of the feral pigs because of habitat destruction and the loss of unique species and archaeological sites.

What will happen to the pigs after they are killed? Can they be sold to a market for processing?

Pig carcasses will decay naturally and the nutrients will be recycled into the island ecosystem. Carcasses in streams will be removed and placed under cover. The pig carcasses cannot be sold or donated for public consumption because they are not government inspected and certified.

In the past, recreational hunters and marksmen were called in to hunt pigs on the island. Why can't local recreational hunters do this job?

During the past century, private landowners undertook efforts to rid the island of feral pigs. But the extremely rugged terrain of Santa Cruz Island, along with the pigs' rapid reproduction rate, foiled their attempts. Today, time is running out for the island fox and nine unique plant species.

Of the contractors who responded to The Nature Conservancy's request for proposals to eradicate the feral pigs, the firm selected was the most advanced and experienced, having successfully completed complex eradication programs on other islands.

How much will the eradication cost?

We expect the pig eradication program to cost approximately \$5 million, shared by the National Park Service and The Nature Conservancy.

This one-time funding of the pig eradication may seem expensive. However, the long-term cost of protecting island foxes, listed plant species and archaeological sites quickly exceeds the cost of this project. For example, island fox recovery costs approximately \$1 million per year. This restoration

program, costing less than \$100 per acre, is by far the most cost-effective way to protect the island's biological diversity and archaeological sites.

Will Santa Cruz Island be closed to the public during the eradication?

Land owned by the National Park Service will remain open to the public during the most of the eradication program, although there may be restrictions on camping and hiking in limited areas during selected times. The Park Service is working with hunters to ensure there is minimal impact to park visitors.

For public safety and liability reasons, The Nature Conservancy will limit public access to its property from March 2005 to June 2007. Landing permits will continue to be issued, and boaters may continue to anchor off shore at all anchorages and explore the island's magnificent sea caves, beaches and coastal areas. However, hiking 50 feet inland—past the mean high water mark—will not be permitted to ensure public safety. Permit holders will be notified in advance of timed beach closures.

What will happen once the pigs are gone? Will the golden eagles start preying exclusively upon foxes?

Once the feral pigs are removed, the island's native vegetation will begin to recover—just as it did following the removal of 36,000 feral sheep from Santa Cruz Island in the 1980s.

We will continue to relocate golden eagles to the mainland and monitor the survival of island foxes in the wild. We are working to have all golden eagles removed from the island once the pig eradication is complete. With no pigs, there will be little food remaining on the island to support any new golden eagle migrants.

How many golden eagles have been relocated to the mainland? How many remain?

Since 1999, The Nature Conservancy and the National Park Service have captured 37 golden eagles from the northern Channel Islands for relocation to the eastern side of the Sierra Nevada Mountains. A number were fitted with radio transmitters. None have returned. Scientists believe that fewer than a dozen golden eagles remain on the island.

Will golden eagles have to be killed to save the island fox?

We are committed to making every effort to capture golden eagles live and relocate them to the mainland. We have no plans for the lethal take of golden eagles in the northern Channel Islands.

Why are bald eagles being reintroduced to Santa Cruz Island?

Bald eagles were extirpated from the Channel Islands by 1960, when high concentrations of DDT in their ocean-based food supply rendered their eggs too thin to hatch.

Around two dozen juvenile bald eagles currently reside on the island. Fiercely territorial once they reach sexual maturity around the age of five, the birds are expected to help deter golden eagles from nesting on Santa Cruz Island. Scientists have already witnessed juvenile bald eagles showing signs of aggression toward adult golden eagles.

Do bald eagles eat island foxes?

Bald eagles co-existed with island foxes for thousands of years. Bald eagles feed primarily on fish and carrion.

Who is involved in the efforts to restore Santa Cruz Island? What exactly is their relationship and who ultimately is in charge?

Preserving Santa Cruz Island's flora, fauna and cultural resources is a cooperative effort involving many partners.

The island's two landowners—The Nature Conservancy and the National Park Service—cooperatively manage Santa Cruz Island as one ecological unit and are responsible for preserving its biological and cultural heritage. To achieve this goal, The Conservancy and the National Park Service have partnered with several organizations to conduct research and implement various aspects of the restoration program. These organizations include the Institute for Wildlife Studies, the University of California Natural Reserve System, the Santa Cruz Island Foundation, the Santa Barbara Museum of Natural History and the Santa Barbara Botanic Garden.

The U.S. Fish and Wildlife Service administers the Endangered Species Act. Shortly after it listed four subspecies of island fox as endangered in March 2004, the Service appointed a recovery team of outside experts to advise the fox recovery program. The recovery team is composed of representatives from various public and private organizations, including scientists from academic institutions, The Nature Conservancy and the National Park Service.

Will the restoration program work?

History is on our side. When The Nature Conservancy purchased 90 percent of Santa Cruz Island in 1978, the island was on the brink of biological collapse. Tens of thousands of feral sheep had devoured much of the island's native vegetation. Entire hillsides collapsed from erosion. A hunting program eliminated the feral sheep in the 1980s. Soon thereafter, island flora staged a dramatic comeback, which continues to this day. Whole forests of bishop pine have repopulated areas once shorn bald by sheep, and rare plants, such as the Santa Cruz Island silver lotus, have crept back over cliffs.

Programs to remove non-native species from other Channel Islands have borne similar results. The removal of rabbits and cats from Santa Barbara Island, sheep and burros from San Miguel Island and pigs and cattle from Santa Rosa Island have allowed the islands to recover to their naturally functioning ecosystems.

Feral pigs have been present on Santa Cruz Island since the mid- 1800s and are the last of the large, non-native animals on the island.

